

WHAT IS CLAIMED IS:

1. A method comprising:
  - (a) measuring a dynamic parameter of the battery;
  - 5 (b) obtaining a discharge current of the battery;
  - (c) measuring a voltage of the battery;
  - (d) obtaining a temperature of the battery;  
and
  - 10 (e) predicting a remaining run time of the battery as a function of the measured battery dynamic parameter, the discharge current, the measured battery voltage, the battery temperature, a full charge battery dynamic parameter and an estimated capacity of the battery.
- 20 2. The method of claim 1 wherein at least one of the measured battery dynamic parameter and the full charge battery dynamic parameter are adjusted such that the measured battery dynamic parameter and the full charge battery dynamic parameter are at a same temperature standard.
- 25 3. The method of claim 1 wherein the dynamic parameter measurement step (a) comprises determining a response of the battery to an applied current pulse.

4. The method of claim 1 wherein the measured battery dynamic parameter is battery conductance.

5 5. The method of claim 1 wherein the measured battery dynamic parameter is battery resistance.

6. A battery monitor implementing the method of claim 1.

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7. The method of claim 6 wherein the battery monitor carries out steps (a) - (e) iteratively.

8. A battery tester implementing the method of 15 claim 1.

9. An apparatus comprising:  
a positive connector coupled to a positive terminal of the battery;  
a negative connector coupled to a negative terminal of the battery;  
a voltage sensor configured to measure a voltage of the battery;  
a temperature sensor configured to measure a 25 temperature of the battery;  
a current sensor configured to measure a discharge current of the battery; and processing circuitry configured to measure a dynamic parameter of the battery using

the first and second connectors, and to predict a remaining run time of the battery as a function of the measured battery dynamic parameter, the discharge current, the measured battery voltage, the battery temperature, a full charge battery dynamic parameter and an estimated capacity of the battery.

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10. The apparatus of claim 9 wherein processing circuitry is further configured to adjust at least one of the measured battery dynamic parameter and the full charge battery dynamic parameter such that the measured battery dynamic parameter and the full charge battery dynamic parameter are at a same temperature standard.

11. The apparatus of claim 9 further comprising 20 a forcing function configured to apply a current pulse to the battery, wherein the processing circuitry is configured to measure the dynamic parameter by determining a response of the battery to an applied current pulse.

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12. The apparatus of claim 9 wherein the measured battery dynamic parameter is battery conductance.

13. The apparatus of claim 9 wherein the measured battery dynamic parameter is battery resistance.

5 14. The apparatus of claim 9 wherein the positive connector is a first Kelvin connector and the negative connector is a second Kelvin connector.

10 15. The apparatus of claim 9 further comprising an output configured to display the remaining run time of the battery.